REMARKS

Claims 1-34 remain in the application. Claims 1, 23-26 and 28-32 stand withdrawn from consideration. Claims 2-22, 27, and 33-34 are subject to examination. Applicant respectfully requests reconsideration.

Applicant appreciates the indication that the drawings as filed on May 19, 2008 are acceptable. Applicant appreciates the acknowledgment that the claim for priority under 35 U.S.C. §119(a)-(d) or (f) has been satisfied and that copies of the certified copies of the priority documents have been received.

The specification was objected to on the grounds that the Abstract was not on a separate page. Applicant has amended the specification to move the Abstract to a separate page. Applicant requests that this objection be withdrawn.

Claims 2, 4-5, 7-8, 14, 15, 18-21 and 27 were rejected under 35 U.S.C. §102(b) as anticipated by *Tindall et al.* (US 6,351,982). Applicant respectfully traverses.

Tindall et al. discloses a conventional pellistor type gas detector with an essentially standard "can" construction. To flameproof the housing, the conventional approach of sealing the sensor with an encapsulant 25 is used. *Tindall et al.* describes this in column 3, lines 34-49 and column 4, lines 39-43. *Tindall et al.* suggests epoxy resin as a suitable encapsulant.

This conventional technique commonly known as "potting" is discussed in the present application at page 2, line 12 onwards. As stated in the present application, a use of a potting compound results in a very large device size. This is also self evident from Figure 2 of *Tindall et al.* in which encapsulant 25 is seen as making up the majority of the sensor volume. It is this very problem which the present invention addresses and solves.

The Office Action suggests that *Tindall et al.* discloses that the conducting leads are at least partially encapsulated by the wall of the housing and refers to lead-in conductors 21 of Figure 2, as support.

Even a cursory review of Figure 2 reveals that leads 21 are not encapsulated by the wall 30 of the housing. Rather, as described in column 3, lines 34-39 of *Tindall et al.*, the leads 21 exit the sensor device via a sleeve portion 24, which is sealed by the encapsulant 25. There is simply no encapsulation of *Tindall et al.'s* leads by his housing wall shown or suggested.

In order to clearly recite in the claims that the present invention requires the conducting leads of the sensor to be encapsulated by the housing wall itself, independent claim 2 and independent claim 33 have been amended to specify that encapsulation is such that there is "intimate contact between the wall and the conducting leads." This limitation is supported in the specification at page 4, lines 4-7. No new matter is being added.

In light of the above, claim 2 is clearly patentable over *Tindall et al.*, and is seen as allowable. Claims 4-5, 7-8, 14, 15, 18-21 and 27 depend from and further limit claim 2. These claims are also seen as allowable.

Applicant respectfully requests that this rejection be withdrawn.

Claim 22 is rejected under 35 U.S.C. §103(a) as unpatentable over *Tindall et al.* Applicant respectfully traverses.

Claim 22 depends from claim 2 and further limits claim 2. Claim 22 is seen as allowable over *Tindall et al.* for the reasons stated above.

Applicant respectfully requests that this rejection be withdrawn.

Claims 3 and 6 were rejected under 35 U.S.C. §103(a) as unpatentable over *Tindall et al.* in view of *Daeche et al.* (WO 00/00820). Applicant respectfully traverses.

Daeche et al. does not fill in the gaps found in *Tindall et al.* with respect to claim 2, as pointed out above. Claims 3 and 6 depend from and further limit claim 2. Accordingly, these claims are seen as allowable over a combination of *Tindall et al.* and *Daeche et al.* for the reasons stated above.

Applicant respectfully requests that this rejection be withdrawn.

Claims 9-13 and 16-17 were rejected under 35 U.S.C. §103(a) as unpatentable over *Tindall et al.* in view of *Doncaster et al.* (EP 0940680) Applicant respectfully traverses.

Doncaster et al. does not fill in the gaps of *Tindall et al.*, as noted above with respect to the argument for patentability of claim 2. Claims 9, 12-13 and 16-17 directly and indirectly depend from and further limit claim 2. These claims are seen as allowable over the combination of *Tindall et al.* and *Doncaster et al.* for the reasons set forth above.

Applicant respectfully requests that this rejection be withdrawn.

Claims 33 and 34 were rejected under 35 U.S.C. §103(a) as unpatentable over *Daeche et al.* in view of *Tindall et al.* Applicant respectfully traverses.

Daeche et al. is directed to a semiconductor type gas sensor having a plastic housing 6 that is formed over a frame 1. *Daeche et al.* is silent on the flameproof qualities of the sensor. There is no mention in *Daeche et al.* that the plastic housing 6 offers any protection in the way of flameproofing. Common knowledge leads one to conclude that the plastic housing does not provide flameproofing. There is no indication in *Daeche et al.* that the wall encapsulating the connection leads has sufficient thickness to prevent the propagation of an ignition source from within the device to the outside atmosphere as required by claim 33.

Daeche et al. discloses that his sensor enclosure is completed by a U-shaped metal case provided with gas inlet openings. See page 5, top paragraph and his claim 3. This U-shaped

metal case is attached to the rest of the structure by "force-locking/form-locking." There is no suggestion in *Daeche et al.* that this construction is flameproof. Indeed, such mechanical attachment techniques are generally not suitable for flameproofing because of the inevitable gaps between the metal component and the plastic housing.

It is clear from the figures of *Daeche et al.* that the gas inlet slots in the metal case are of such significant size that the metal case cannot be considered to form a flame arrestor. *Daeche et al.* adopts this construction in order to allow fitting up a metal case to the plastic housing after molding is complete.

The Office Action suggests that starting with the teachings of *Daeche et al.*, it would be obvious to complete the enclosure using a flame arrestor as taught by *Tindall et al.* in place of the disclosed metal case. Applicant respectfully traverses.

Tindall et al. discloses that his flame arrestor 15 is incorporated into the sensor by molding the plastic housing 10 around the sinter elements as described in his column 3, line 52 to column 4, line 20. A person of skill in this art following the teaching of *Tindall et al.* would add the flame arrestor to *Daeche et al.'s* sensor by incorporating it during the molding of housing 6.

However, to do so, the sensor element itself (semiconductor chip 3) must be mounted to the lead frame 1 before the over molding process. It cannot be done after molding since there will be no access to the interior of the sensor which is sealed on one side by the housing 6 and on the other side by the newly added flame arrestor.

Mounting the sensor element to the lead frame 1 prior to the over molding process is unworkable because the temperatures to which the sensor element semiconductor chip would be exposed during over molding would cause great damage to, and severely affect the performance

of, the sensor. Certainly *Daeche et al.* does not in any way suggest that the sensor element 3 should be mounted to a lead frame when over molding takes place.

Applicant respectfully submits that a person of ordinary skill in the art would not combine the teachings of *Daeche et al.* with *Tindall et al.* in the manner suggested in the Office Action because that combination is technically incorrect and would lead to an unworkable design. A person of ordinary skill in the art would only follow the teachings of *Daeche et al.* and utilize the metal cap design disclosed by *Daeche et al.*

Furthermore, the Office Action suggests that a person of ordinary skill in the art could start with the teaching of *Tindall et al.* and replace the disclosed "can" housing construction of *Tindall et al.* with the direct molding process disclosed by *Daeche et al.* Applicant respectfully traverses.

In *Tindall et al.* the sensing elements 18 and 19 are fitted into the top part of the housing 10 after the over molding step has been completed from underneath. The enclosure is completed using a second portion of the housing which is then sealed using an encapsulant 25 as previously described.

A person of ordinary skill in the art following the teachings of *Daeche et al.* would attempt to mold the housing around conducting leads 21 by pre-mounting the sensor elements 18 and 19 to the conducting leads. You would have to do this because there would be no access to the interior of the sensor enclosure after the over molding step is complete. The enclosure will be sealed on one side by a flame arresting element and on the other side by the plastic housing.

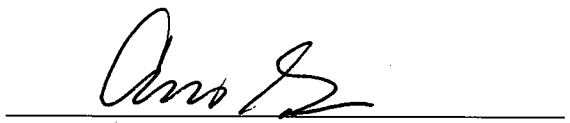
As noted above, this approach would damage the sensing element. A person of ordinary skill would not follow this procedure.

In light of the above amendment and remarks, applicant respectfully submits that all the claims under examination are allowable and respectfully requests that these claims be allowed.

Applicant gives the Examiner permission to cancel the withdrawn claims and pass this application to issue, if all the claims under examination are allowed. Applicant respectfully requests that this application be passed to issue.

Respectfully yours,

SNELL & WILMER L.L.P.



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